

# Caltrans Welcome

Allen King, PE

Caltrans – Concrete Pavements Manager

National Concrete Consortium Conference

San Diego, CA – April 7-8, 2024



# Agenda

- Why We're Here
- Scale of Caltrans
- Innovation
- Partnerships
- LA28 Olympics
- Call to Action



# Why We're Here

Sacramento → San Diego

- NCC last hosted in California – Fall 2010 in Sacramento, CA – 16 years ago!
- Bringing together DOTs, industry, and academia to solve shared challenges
- Accelerating innovation – turning research into real-world implementation faster
- Sharing lessons learned across states – what works, what doesn't, and why
- Aligning on best practices to improve performance and durability nationwide
- Leveraging partnerships to deliver better outcomes
- Preparing for what's next – sustainability, resilience, and major events like LA28





# CALTRANS BY THE NUMBERS

*Keeping California Moving*



## WORKFORCE



**~20,000**  
EMPLOYEES STATEWIDE

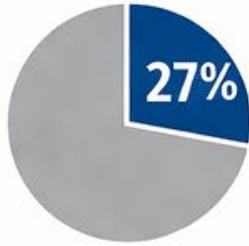
A small city of engineers, operators, planners, and problem-solvers powering the network every day.



## SYSTEM SIZE



**~50,000**  
LANE MILES OF  
HIGHWAY



27% is  
Concrete Pavement  
→ **~13,500**  
LANE MILES OF  
CONCRETE PAVEMENT



**150K to 350K**  
CUBIC YARDS (CY)  
OF CONCRETE PAVEMENT  
PLACED EVERY YEAR!



## STRUCTURES

**~13,000**  
STATE-OWNED  
BRIDGES

Connecting communities, economies, and everything in between.



## SYSTEM USAGE



**~183**  
BILLION  
VEHICLE MILES  
TRAVELED ANNUALLY  
ON STATE HIGHWAYS



**~36**  
MILLION  
REGISTERED VEHICLES  
IN CALIFORNIA





### California vs. National Test Methods



#### California Test Methods



~30 CTM's related to concrete

- California Specific
- California implementation, national alignment



#### National Test Methods

- AASHTO
- ASTM



# Special Projects

## D4 - CRCP-RSC on CC-80 Near Carquinez Bridge

### a) Original Plan

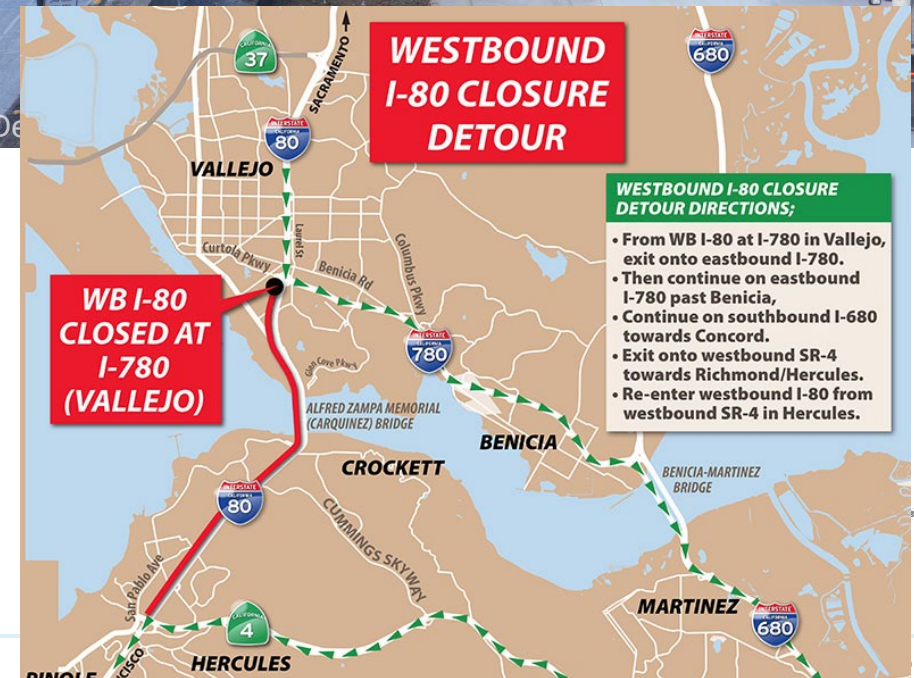
- ✓ Precast Concrete Pavement (**PCP**)
- ✓ Installation would take approximately **20-weeks** of nightly work

### b) Through Value Engineering Change Proposal (**VECP**)

- PCP Replaced with Continuously Reinforced Concrete Pavement with Rapid Strength Concrete (**CRCP-RSC**)
- **10,000 CY** of CRCP-RSC places in **TWO 55-hr closures**
- **9,400 CY** of CRCP-RSC placed in **104-hr closure** (minus 12-hr)
- Caltrans saved approx **\$2,389,111** by using CRCP-RSC



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# Special Projects

## D7 - JPCP-RSC on I-10, near Pomona

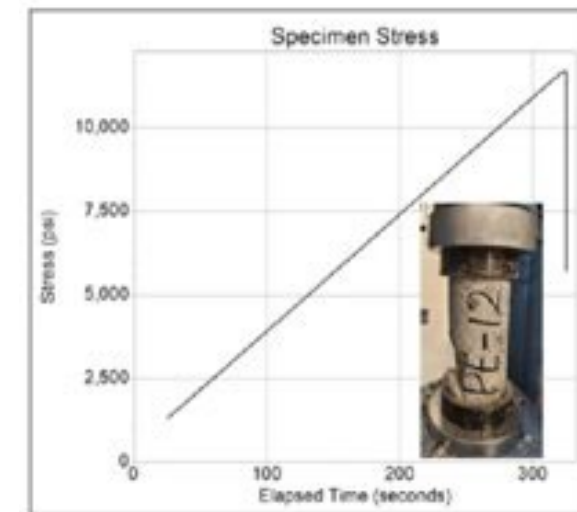
- California's earliest large-scale RSC pavement application, installed in 1999.
- It is still under long-term performance evaluation nearly 25 years later



Construction of JPCP-RSC on I-10 in 1999



Coring of 25-yr JPCP-RSC project on I-10 in 2023

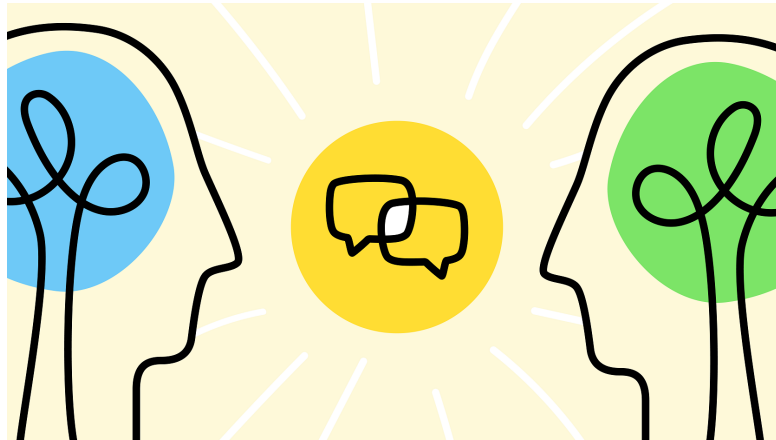


A compressive strength of 12,000 psi were measured from RSC cores



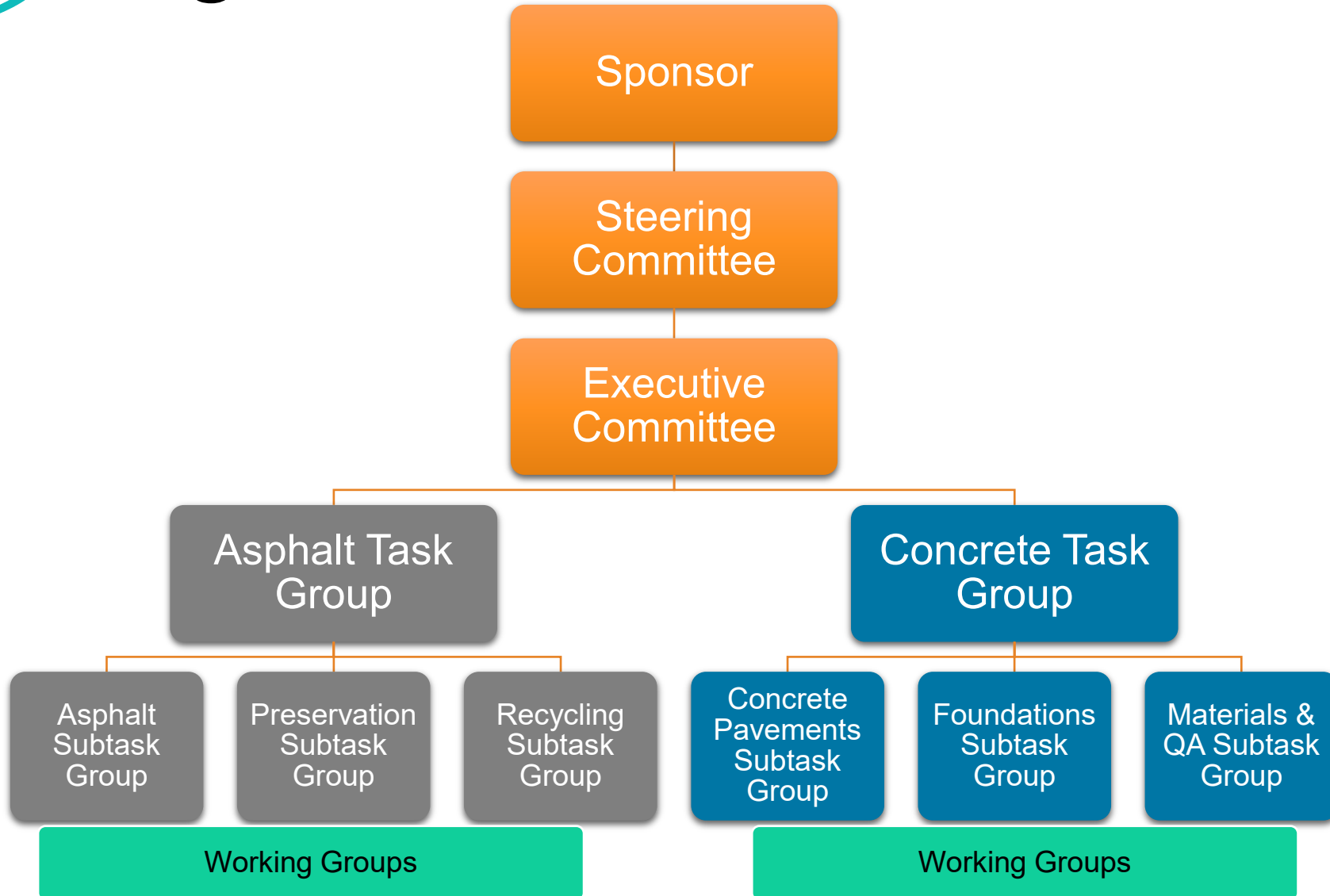
# What is PMPC?

- PMPC = Pavement and Materials Partnering Committee
- The PMPC is created as a collaborative effort by **Caltrans** with the **Industry** to improve roadway construction specifications and test methods.





# Organizational Structure





# Organizational Structure (cont.)

Sponsor

## Deputy Directors

- Project Delivery
- Maintenance and Operations

Steering  
Committee

## Division Chiefs

- Maintenance
- Construction
- Engineering Services
- Research, Innovation, and System Information



# Pilot Projects:

## Concrete Innovation Pilots – Status Overview

● Monitoring ● In Progress / Upcoming ● Reporting Phase



Polyester Concrete Inlays

Monitoring (NCE)



Fiber Reinforced RSC

To Be Monitored (NCE)



REBEL Sensor

Pending Final Report



Internal Curing

To Be Monitored (NCE)



Thin Concrete Overlays

Monitoring (UCPRC)



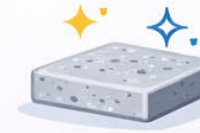
Roller Compacted Concrete

To Be Constructed



Cool Pavement

Pending Final Report



Next Generation Concrete Surface

Pending Final Report

F3 – Lane 3 (bauxite aggregate)



Polyester concrete inlay – measuring with Dipstick Profiler



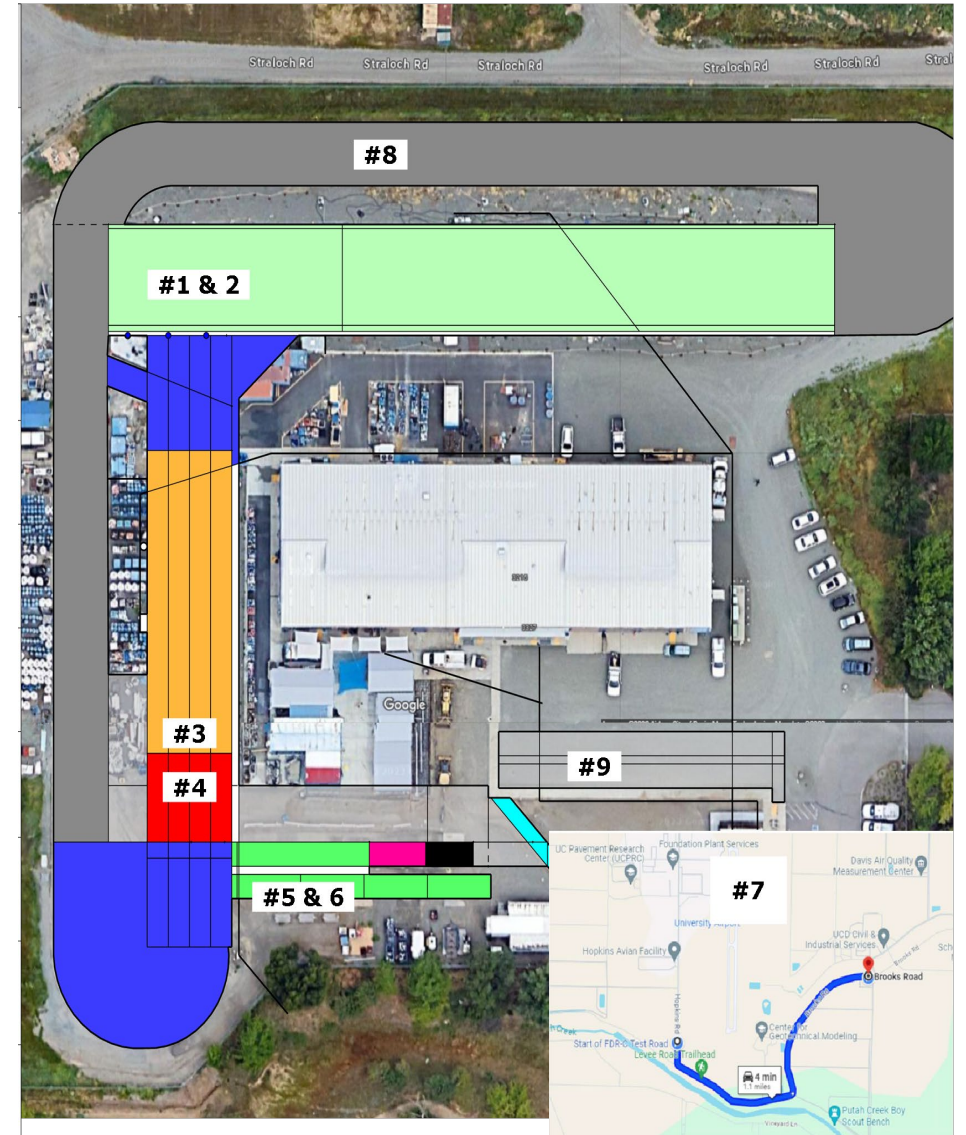
# University of California Pavement Research Center

UCPRC

- Conducts pavement engineering research, HVS testing, and technical reports.
- Develops statewide tools like RealCost and eLCAP for LCCA and sustainability.
- Provides data for pavement specifications, PMPC work products, and design.
- Supports innovation, sustainability, and long-term pavement performance goals.
- Low Carbon Concrete Lab2Slab2Standard Practice test tracks for new low carbon concrete mixes
- Jointed Plain Concrete on Cold Recycled Base test track to evaluate using this base type for concrete pavement









**UC PAVEMENT RESEARCH CENTER**  
**UCDAVIS**

<https://ucprc.ucdavis.edu>



# Partnerships & Research

## • University of California Pavement Research Center (UCPRC):

- |  |  |
|--|--|
| <b>TO-13</b><br><br>Updates and improvements to web-based RealCost-CA<br>✓ Monitoring (NCE) | <b>TO-20</b><br><br>Piloting of new asphalt base designs and interlayers for concrete pavement bases<br>✓ Reporting Phase |
| <b>TO-11</b><br><br>Supplementary cementitious materials (Phase 1)<br>✓ Monitoring (NCE)    | <b>TO-04</b><br><br>Life cycle assessment   |
| <b>TO-08</b><br><br>Supplementary cementitious materials (Phase 2)<br>✓ Monitoring (NCE)    | <b>TO-19</b><br><br>CRCP ME design  |
| <b>TO-16</b><br><br>Recycled fibers in concrete   | <b>TO-17.3</b><br><br>Support for concrete pavement ME design<br>✓ Reporting Phase                                      |
| <b>TO-18</b><br><br>Cold recycling for concrete pavement bases                            | <b>TO-17.6</b><br><br>Supporting concrete pavement pilots   |



# Office of Concrete Pavements – National Involvement:

## Allen King

- Panel member, TPF-5(437) Technology Transfer Concrete Consortium
- Panel member, TPF-5(537) Improving the Quality of Highway Profile Measurement
- Executive board member, TPF-5(466) National Road Research Alliance TRB committee member, AKN14 – Concrete Pavement Design and Construction

## Andre Totari

- TRB committee member, AKN18 – Pavement Maintenance, Preservation, and Rehabilitation

## David Lim

- Member, AASHTO COMP TS 3a – Cement, Lime, and Concrete Materials
- Member, AASHTO COMP TS 3b – Fresh Concrete
- Member, AASHTO COMP TS 3c – Hardened Concrete
- Panel member, NCHRP 10-116 Quantifying Variability in Quality Characteristics of Pavements
- Panel member, TORS TO-02, State of Practice of Pozzolanic Concrete in Infrastructure Projects
- Panel member, TPF-5(466) National Road Research Alliance
- Panel member, TPF-5(437) Technology Transfer Concrete Consortium
- Panel member, TPF-5(471) Real-time Monitoring of Concrete Strength to Determine Optimal Traffic Opening Time
- Panel member, TPF-5(498) VKelly Slipform Paving Vibration Test
- TRB committee member, AKN13 – Concrete Pavement Materials

## Deepak Maskey

- Panel member, NCHRP 01-62 Impact of Flooding and Inundation on the Resiliency of Pavements
- Panel member, NCHRP 10-131 Implementation of Full-Scale Laboratory Tests to Determine Performance Properties of Geosynthetic-Reinforced Pavements
- Team member, FHWA, Sustainable Pavement Technical Working Group
- Panel member, TPF-5(466) National Road Research Alliance
- TRB committee member, Pavement Foundation (AKN16)

## Dulce Rufino Feldman

- Chair, AASHTO COMP TS 5d – Pavement Design
- Member, AASHTO COMP TS 5a – Pavement Measurement and Performance Measure
- Panel member, National Task Force member on AASHTO Pavement ME Models for Concrete Pavements
- Panel member, NCHRP 01-64 Development of Longitudinal Cracking Models for Concrete Pavements
- Panel member, NCHRP 01-65: Improving Slab Warping Predictions of AASHTOWare PMED for Concrete Pavements
- Panel member, TPF-5(437) Technology Transfer Concrete Consortium
- Panel member, TPF-5(537) Improving the Quality of Highway Profile Measurement
- TRB committee member, AKN14 – Concrete Pavement Design and Surface Characteristics

## Rukesh Maharjan

- Panel member, TPF-5(437) Technology Transfer Concrete Consortium

# LA 28 Olympics & 2026 FIFA World Cup

- **Statewide Planning:** \$17.5M funding request for seamless mobility network planning.
- **Planning** for 1.2M peak daily spectator trips; major freeway operations focus. (Equivalent to 7 super bowls every day for a month)
- **Regional Coordination:** Caltrans is part of the Games Mobility Executives (GME).
- **Games Route Network:** Special-use Olympic freeway lanes planning support.
- **Infrastructure Support:** D Line Extension, LAX People Mover, bus priority corridors.
- **Caltrans-funded local improvements:** \$609K for Olympic Legacy Street Study.
- **Statewide mobility initiatives:** signal priority, smart mobility, zero-emission transition.
- **FIFA World Cup** as pilot for LA 28 Olympics



# Caltrans Games Route Network

## CALTRANS GAMES ROUTE NETWORK (GRN)

- A GRN is a network of roads for traveling between official venues
- Dedicated lanes for the use of *Games Family* vehicles
- General traffic prohibited from using these dedicated travel lanes.
- Promotes “No Venue Parking” at Games – *Transit First*

Courtesy of LA Metro



Courtesy of LA Metro

## DISTRICTS 7, 8, 12 GRN ON FREEWAYS

- Create dedicated lanes for use of Games Family Vehicles by temporarily converting HOV, HOT, GP, and/or shoulders to facilitate exclusive games-related travel.
- Emergency vehicles will have access, but general traffic will be prohibited from using these dedicated travel lanes.
- Duration of closure to the public during the day is to be determined and may depend on route.
- Lanes to be delineated by striping, pavement painting, and new signage on existing structures.



# COME BACK TO CALIFORNIA



## THANK YOU!



# 2026 FIFA WORLD CUP + LA28 OLYMPICS!



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